

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAHGAT

TEST-3 EXAMINATION-December 2021

BTech VII Semester: Open Elective

Course Code: 18B1WPH731

MAX. MARKS: 35

Course Name: Nanotechnology

Max. TIME: 2 HRS

Note: All questions are compulsory

Q.1. Write down 5 different physical properties that change and a reason why but other than size of the nanoparticles. **4**

Q.2. What is the primary reason why the crystal lattice constant becomes smaller on nanomaterial formation with respect to their bulk counterparts. **4**

Q.3. Name the primary two reasons for an increased hardness in the case of nanowiskers? **4**

Q.4. With reference to nanoparticle synthesis discuss homogeneous and heterogeneous nucleation both graphically and mathematically. Also discuss which nucleation is predominant in nanoparticle synthesis and why? **5**

Q.5. Is there any difference in the vapor phase growth and liquid phase growth of nanoparticles? Discuss both the methods with respect to their advantages and disadvantages. **5**

Q.6. Discuss any two applications of nanomaterials with respect to your field of studies. Describe all the aspects such as type of material, its synthesis technique, how it is being employed along with its pros and cons. **5**

Q.7. If you want to analyze the prepared nanomaterials qualitatively and quantitatively then according to you which are the important techniques of characterization can be employed? **4**

Q.8. Nanomaterials are the new age wonders, they have the capability to revolutionize the world but can have positive as well as negative impacts on environment. Give your views on the topic scientifically. **4**

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